

HIGH-VOLTAGE INTEGRATED VERTICAL RESISTOR AND MANUFACTURING  
PROCESS THEREOF

ABSTRACT OF THE DISCLOSURE

The manufacturing process comprises the steps of growing epitaxially a first layer from a semiconductor material substrate, forming in the first layer a first and a second buried region spaced from one another and having conductivity of the type opposite that of the first layer; growing epitaxially on the first layer a second layer of semiconductor material having the same type of conductivity as the first layer; forming in the second layer a trench extending in depth beyond the buried regions, arranged between the buried regions, and having, in plan view, a frame shape; forming an oxide layer covering the lateral walls and the base wall of the trench; and filling the remaining part of the trench with an isolating material. By this means, the portion of the second layer surrounded by the trench defines a first high-voltage resistor having a vertical structure and current flow, whereas the portion of the first layer arranged below the trench defines a second high-voltage resistor arranged in series with the first high-voltage resistor, and also having a vertical structure and current flow.